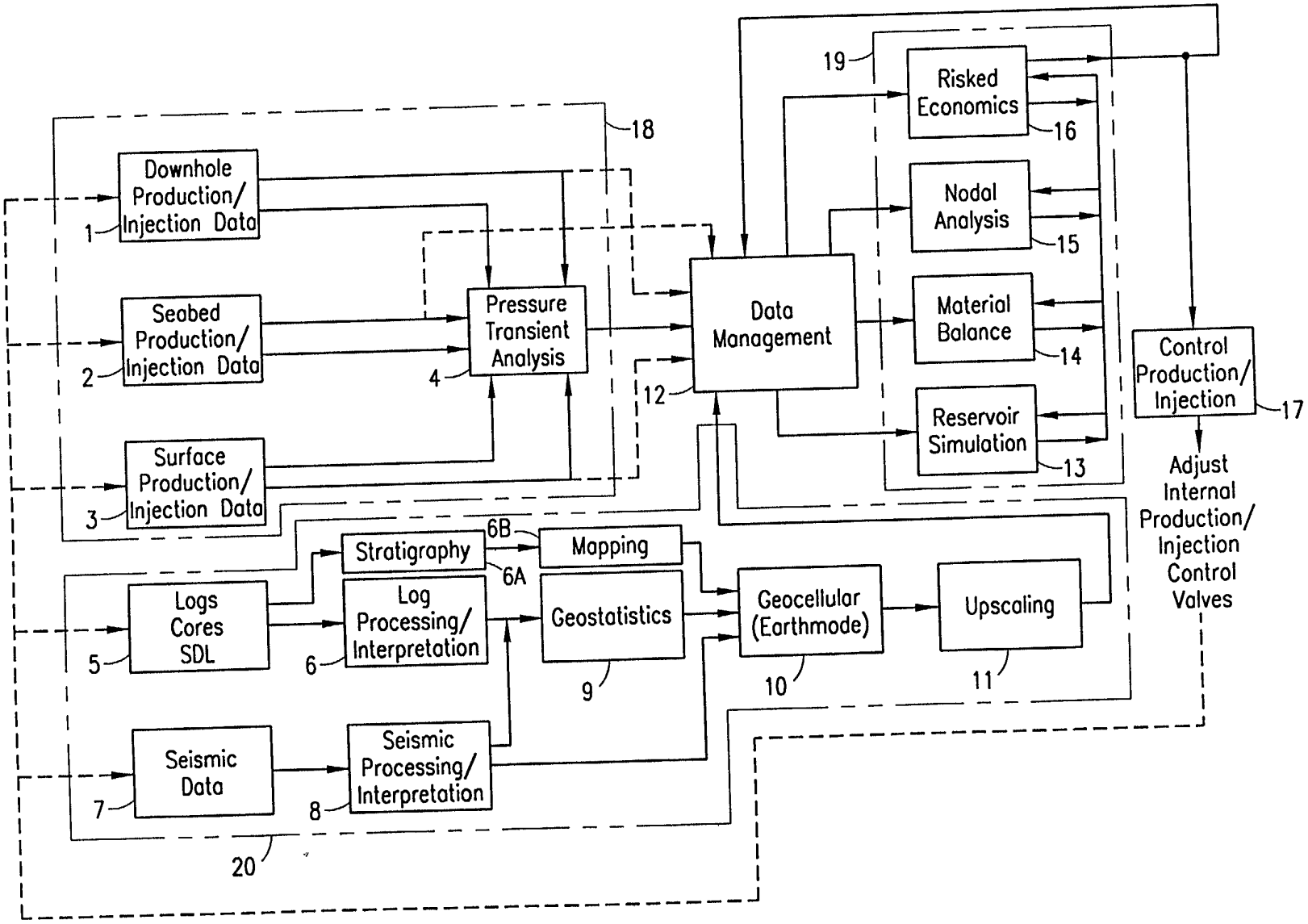
Document received

# FIGURE 1



Toshiba Corporation

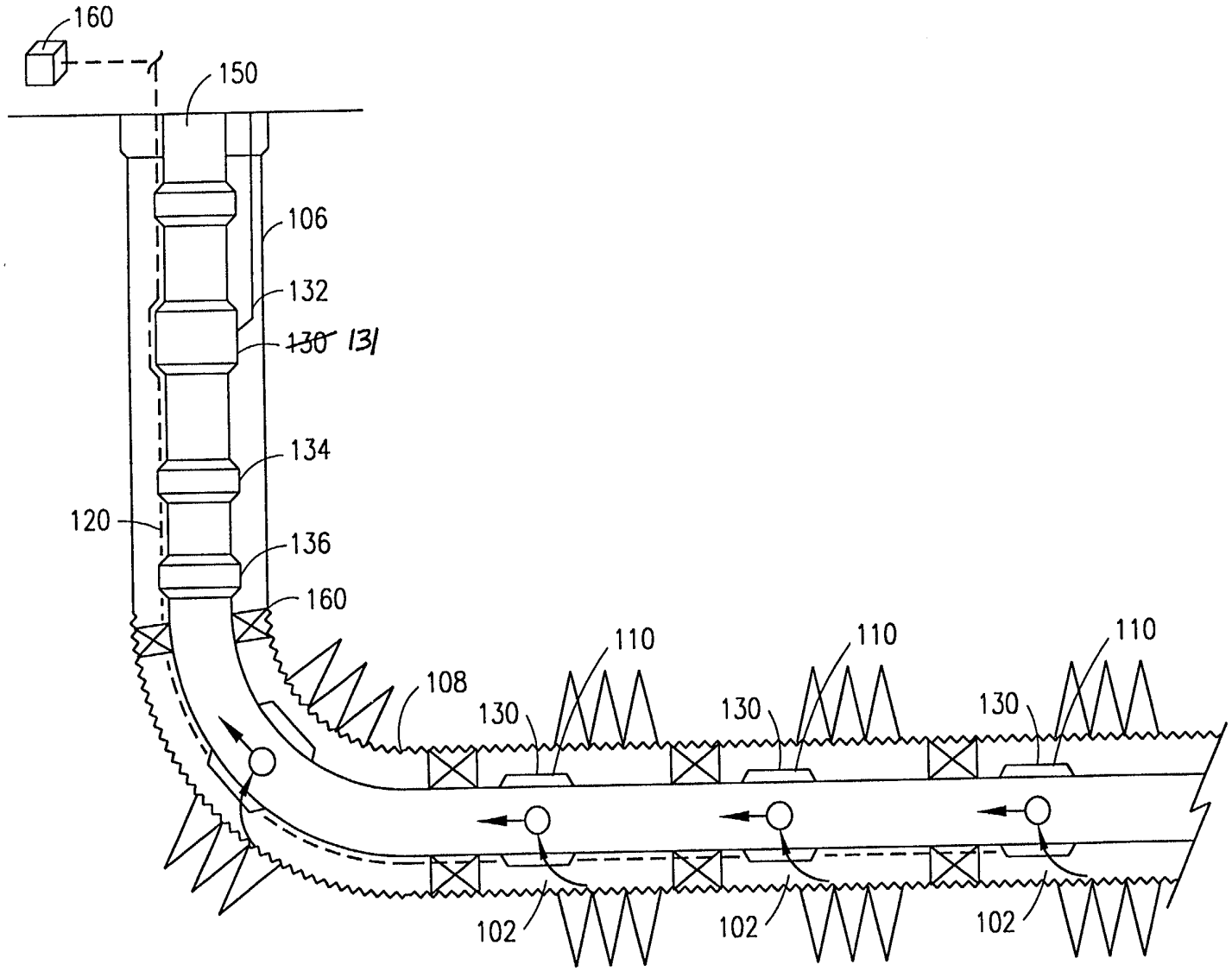



*FIGURE 2*

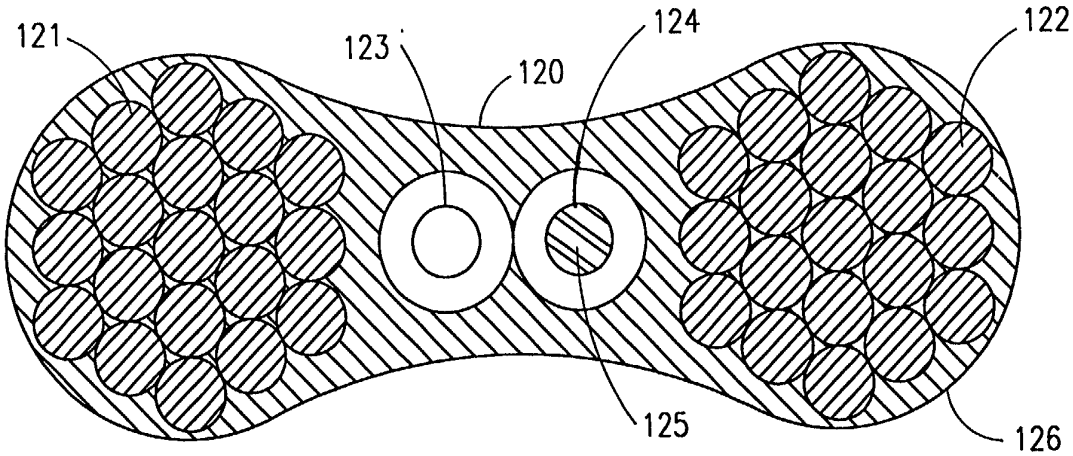
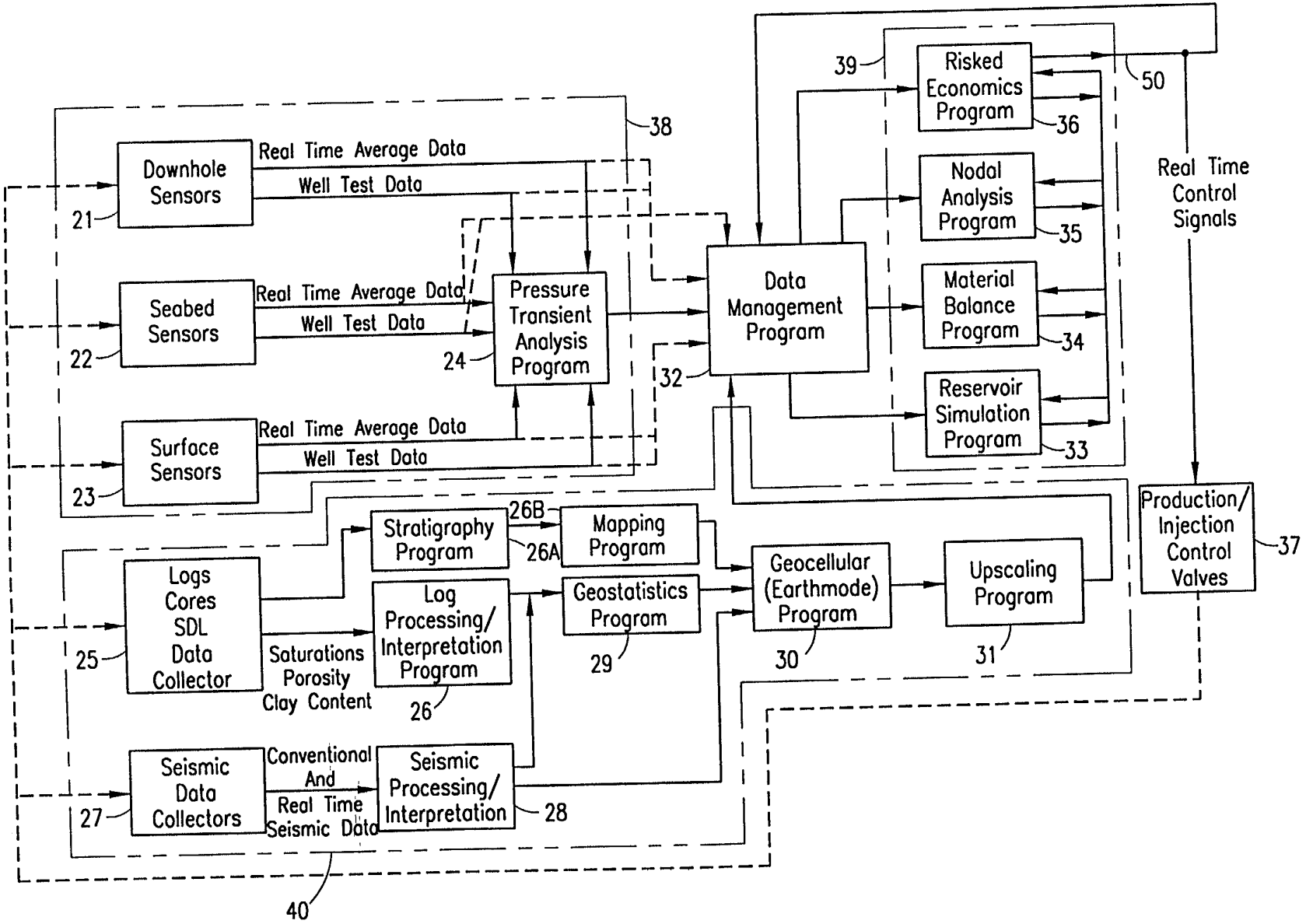



*FIGURE 3*

# FIGURE 4


Downhole Sensors
21
Real Time Average Data
Well Test Data
Seabed Sensors
22
Real Time Average Data
Well Test Data
Surface Sensors
23
Real Time Average Data
Well Test Data
38
Pressure Transient Analysis Program
24
Data Management Program
32
Risked Economics Program
39
36
Nodal Analysis Program
35
Material Balance Program
34
Reservoir Simulation Program
33
50
Real Time Control Signals
Production/ Injection Control Valves
37
Stratigraphy Program
26A
26B
Mapping Program
Logs Cores SDL Data Collector
25
Saturations Porosity Clay Content
Log Processing/ Interpretation Program
26
Geostatistics Program
29
Geocellular (Earthmode) Program
30
Upscaling Program
31
Seismic Data Collectors
27
Conventional And Real Time Seismic Data
Seismic Processing/ Interpretation
28
40

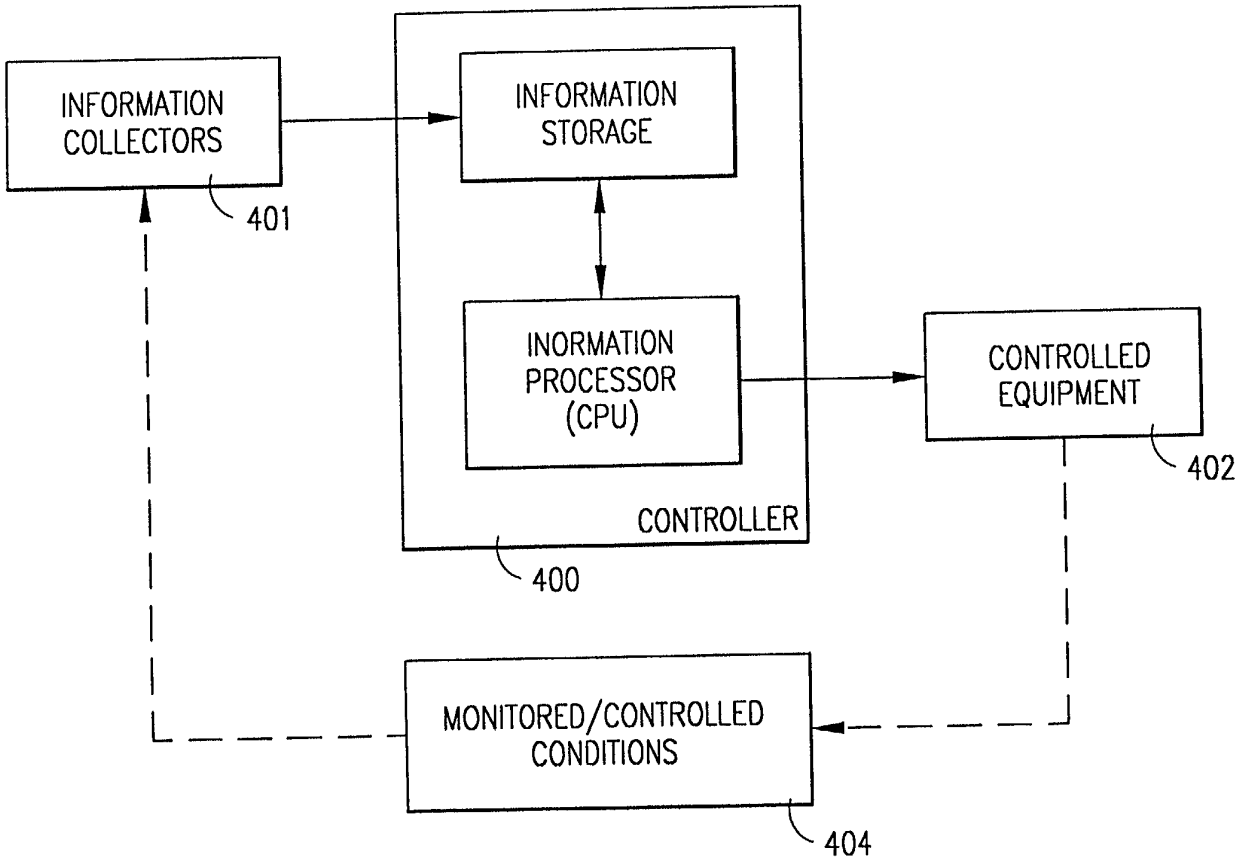

INFORMATION COLLECTORS
401
INFORMATION STORAGE
INORMATION PROCESSOR (CPU)
CONTROLLER
400
CONTROLLED EQUIPMENT
402
MONITORED/CONTROLLED CONDITIONS
404

*FIGURE 4A*

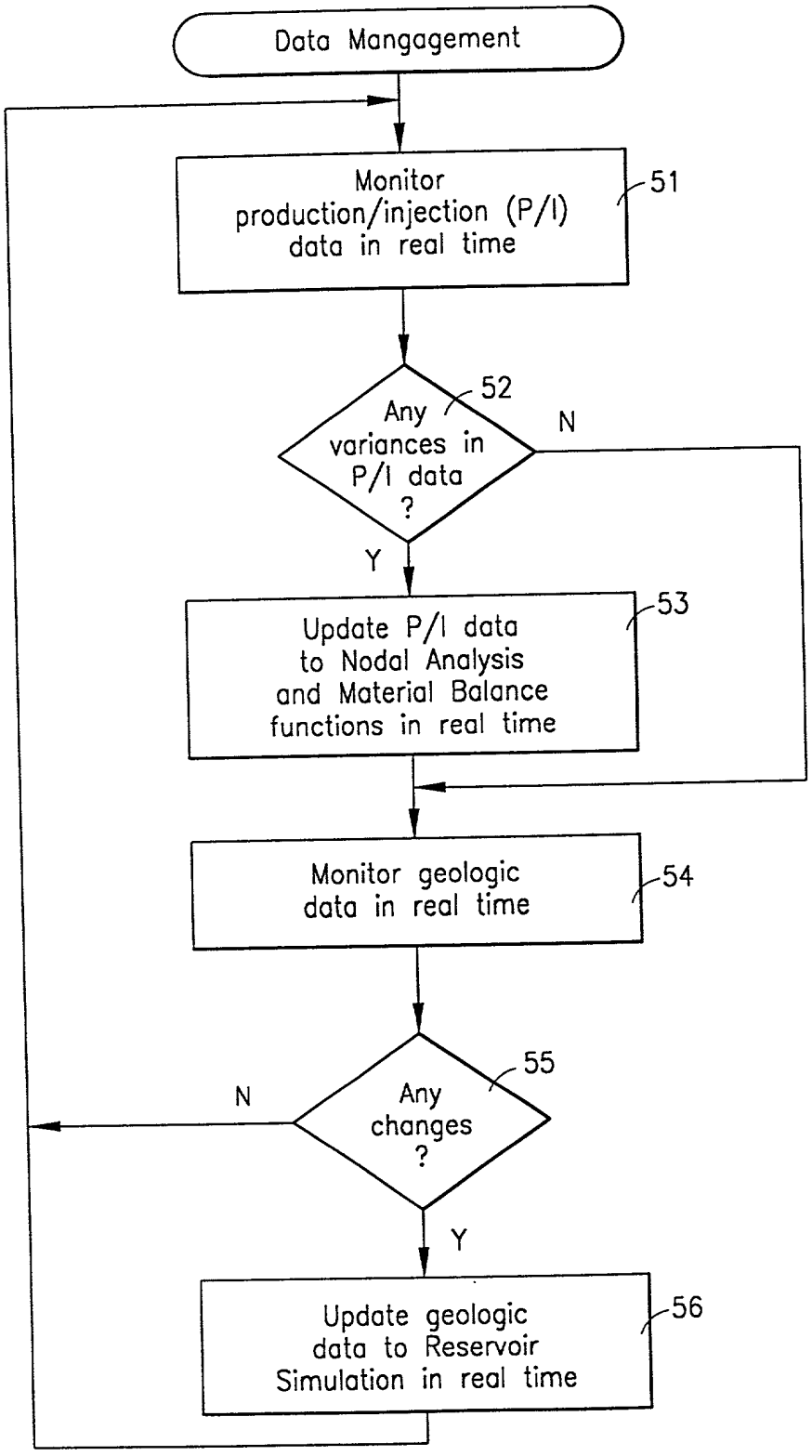

Data Mangagement
Monitor production/injection (P/I) data in real time
51
Any variances in P/I data ?
52
N
Y
Update P/I data to Nodal Analysis and Material Balance functions in real time
53
Monitor geologic data in real time
54
Any changes ?
55
N
Y
Update geologic data to Reservoir Simulation in real time
56

*FIGURE 5*

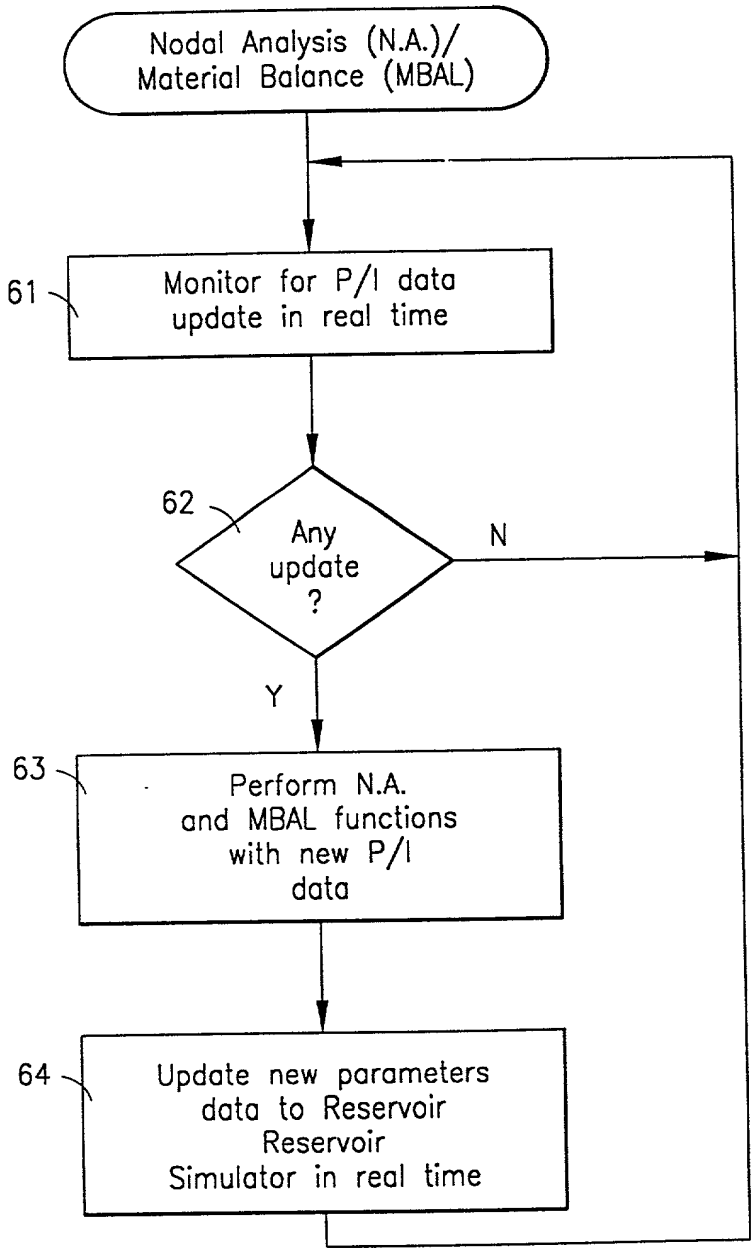

Nodal Analysis (N.A.)/
Material Balance (MBAL)
61
Monitor for P/I data
update in real time
62
Any
update
?
N
Y
63
Perform N.A.
and MBAL functions
with new P/I
data
64
Update new parameters
data to Reservoir
Reservoir
Simulator in real time

*FIGURE 6*

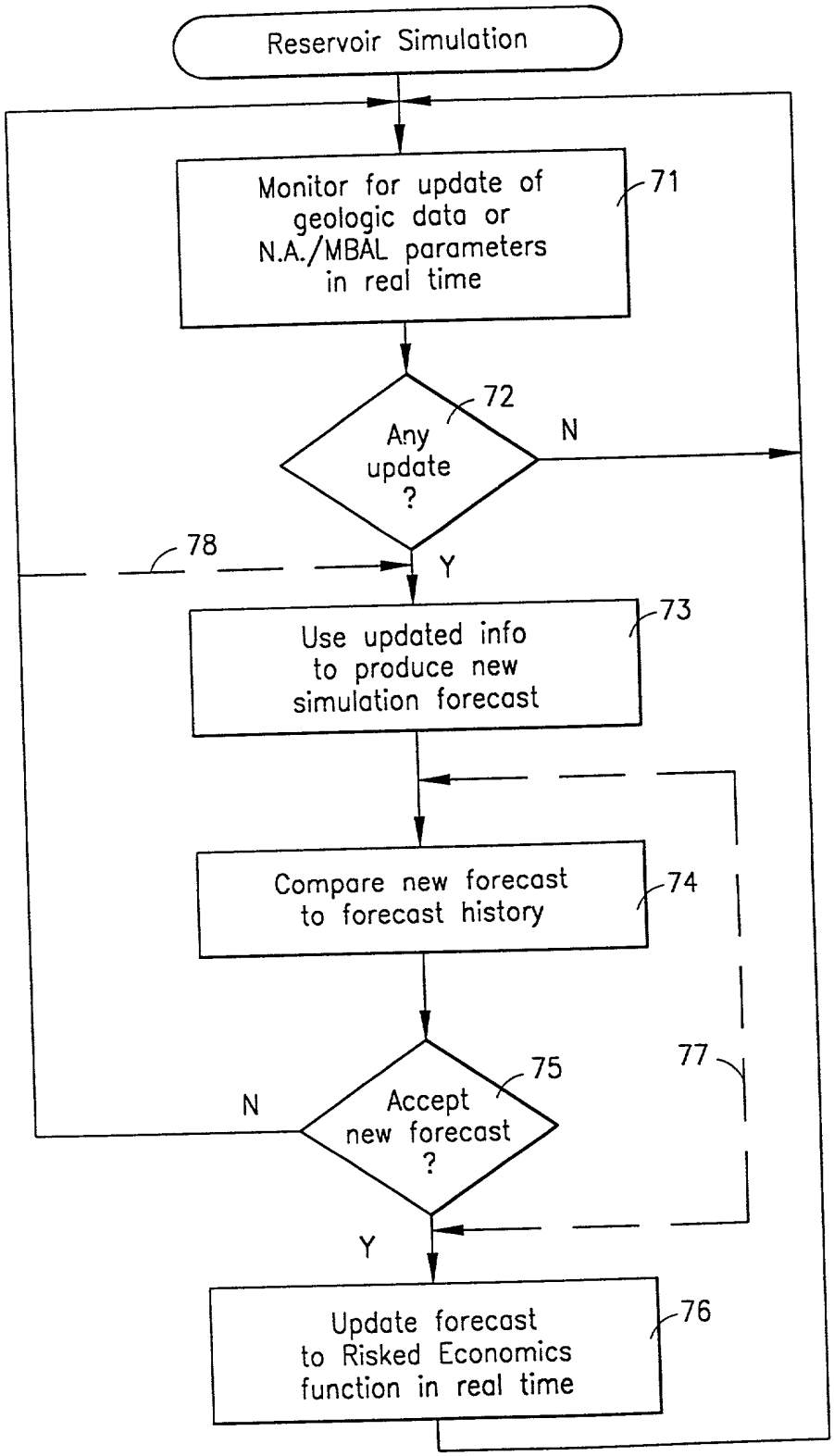

Reservoir Simulation
Monitor for update of geologic data or N.A./MBAL parameters in real time
71
Any update ?
72
N
Y
78
Use updated info to produce new simulation forecast
73
Compare new forecast to forecast history
74
Accept new forecast ?
75
N
Y
77
Update forecast to Risked Economics function in real time
76

*FIGURE 7*

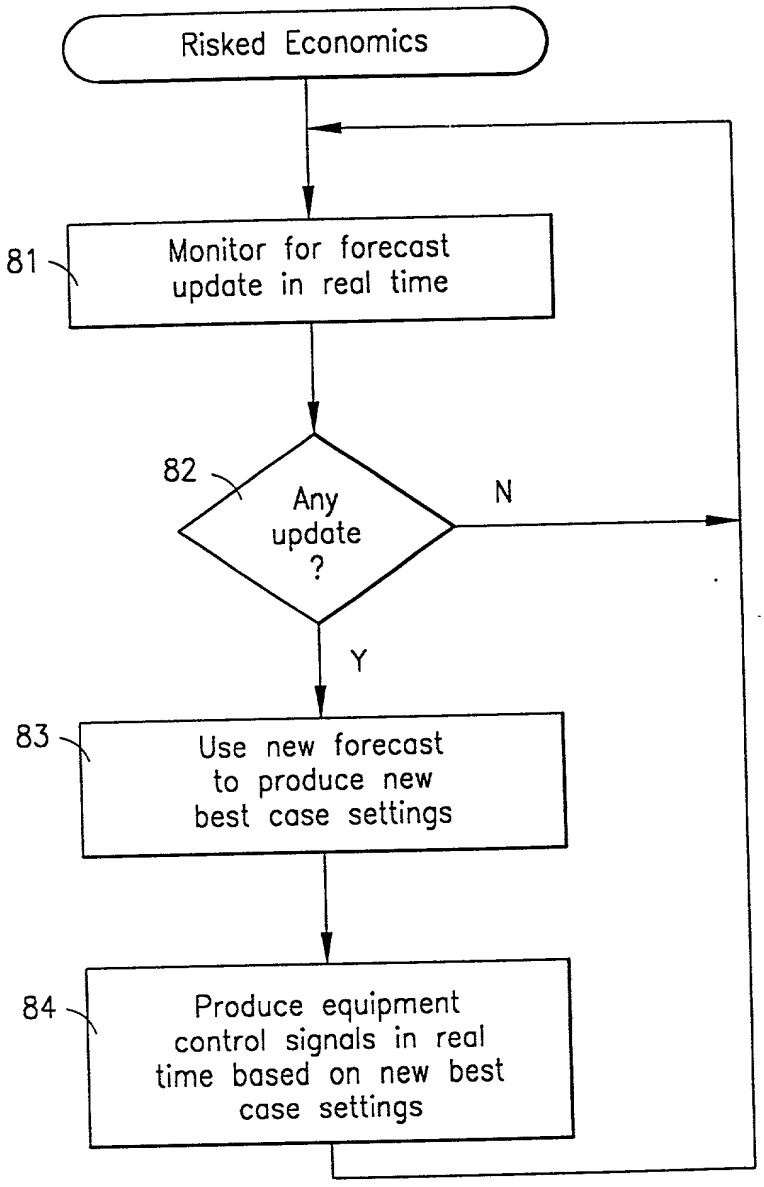

Risked Economics
81
Monitor for forecast update in real time
82
Any update ?
N
Y
83
Use new forecast to produce new best case settings
84
Produce equipment control signals in real time based on new best case settings

*FIGURE 8*